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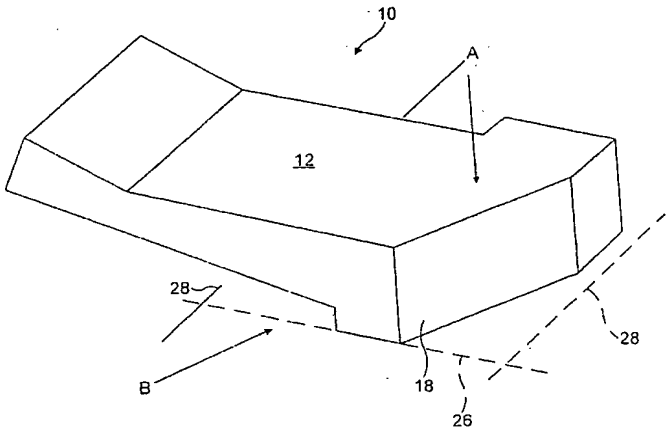
(54) Title: ULTRASONIC LIQUID VISCOSITY SENSOR USING MODE CONVERSION



(57) Abstract: The present invention provides a liquid viscosity sensor comprising an ultrasonic source, a sampling body and an ultrasonic receiver. The sampling body includes a sampling face contactable by a sample of liquid, in use. The source is operable to generate a longitudinal ultrasonic wave which follows a path through the body to the sampling face and onwards to the receiver. The body is configured such that the longitudinal wave emanating from the source is transformed into a horizontally polarised shear wave prior to reaching the sampling face, and the horizontally polarised shear wave is re-transformed into a longitudinal wave before reaching the receiver. There is provided a sensor adapted to utilise the interaction of a horizontally polarised shear wave at a liquid solid interface to measure viscosity, while eliminating the need to provide both a source and receiver configured to generate and receive horizontally polarised shear waves.

WO 2005/012897 A1

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